May I say that until one has well and truly excluded the possibility of gonorrhœa, it is impossible to arrive at the diagnosis of non-gonococcal urethritis. Thus I have endeavoured to put before you what I consider to be the best laboratory methods to establish the cause of an urethral discharge.

VIII

NON-GONOCOCCAL URETHRITIS

Discussion

Dr. J. A. Burgess said that it would assist their appreciation of these cases if there was a more definite classification. Cases of primary non-gonococcal urethritis without previous gonococcal infection could be divided into two main groups, namely, irritative and infective. The irritant group could be sub-divided into sub-groups where the urethritis was due to chemical, mechanical, urinary, or sexual origin. In the infective group, there would be the various causative organisms, *e.g.*, cocci, bacilli, protozoa, metazoa or filtrable viruses.

The following interesting case belonged to the mechanical sub-group of Irritative Primary Non-gonococcal Urethritis. A man, aged 24, with an acute purulent non-gonococcal urethritis, had five or six firm palpable swellings, which he took to be infected Littre's glands. A further examination showed that the swellings were movable ; on doing meatotomy 6 urethral calculi were recovered.

Major Marshall concurred that the incubation period was always longer than in gonorrhœa. He had examined the wives and consorts of men suffering from non-gonococcal urethritis without finding much evidence of infection comparable to that found in the male partners.

He referred to men returning after a long period overseas who were infected with gonorrhœa by their wives. In some cases it seemed certain that the man himself had infected his wife in the first instance but had become tolerant to that particular gonococcus. After a long rest, however, either the man or the gonococcus had altered, and reinfection occurred.

Dr. B. B. Sharp said that he had collected impressions on this subject over a period of 20 years. The first was that it seemed to be more prevalent in the spring or early summer. He did not know whether this was due to climate or to different seasonal activities. He also thought that quite a large proportion of these cases had no relation to gonorrhœa. In some of them, according to the history, there had been no sexual intercourse for a period of months or even years. Often there was a previous history of non-specific urethritis, and the incubation period seemed to be extremely variable. He had had patients produce a non-specific urethritis the day after risk (? activation of something latent). Others would not have been exposed to risk for weeks ; the question then was whether it was related to the previous risk.

With regard to the non-infective group, calculi were sometimes a cause and a pinhole meatus might predispose to chronic urethritis. Among chemical contraceptives, quinine seemed to be a gross offender. He thought the reaction was allergic, not depending on the amount but whether it had been used at all.

Hypochondriacs seemed to be more susceptible to these discharges. He had noted urethral discharge in persons with urticaria. In some cases urethroscopy revealed " sago-grain " urethritis, and many of these cases had some chronic vesicular or prostatic infection with no evidence of gonococcal origin ; in the past he had tried zinc ionisation with some success.

He had never seen a case of diabetic urethritis and asked whether it was chemical or infective (*e.g.*, yeasts).

When non-specific urethritis has followed risk a Wassermann should be carried out later to make quite sure that it was not due to syphilis. In civil practice he would take a lot of persuading to submit a person with a benign urethritis to hyperthermia.

Lieut.-Col. D. J. CAMPBELL agreed, on the question of incubation period, that non-gonococcal urethritis was usually of long incubation and could say confidently that there were instances of months, for a fair proportion of his cases were in detention barracks where long term prisoners were confined. Some of these men, who had served a few months of their sentences, turned up with urethritis which was non-gonococcal in character despite microscopical and laboratory examinations. He suggested that the more exacting life led by the soldier might be a factor. Many men in the detention barracks ran around the barrack square so that trauma due to extra exercise might be a contributory cause.

As regards early involvement of the prostate he had noted that even in cases where organisms were scanty that the prostate appeared affected as early as the tenth day, as judged by the number of leucocytes in the field. He was afraid if they were to accept 15 leucocytes as evidence of potential gonorrhœa that he had missed many gonococcal cases. On the question of treatment he agreed that therapy other than chemotherapy was essential and he used mercury oxycyanide 1 in 5,000, also the acriflavine dyes either by mouth or in glycerine, 1 in 8,000.

S./Ldr. BALL wished to elucidate some of the remarks made by W./Cdr. McElligott. They found that their N.V.D. cases were equal in number to their gonococcal and the incubation periods mainly were 4–5 weeks. Of the cultures taken in the past four months not more than 35 per cent. showed a positive result. They had used a six-day course of sulphanilamide 6 grms. for two days, 5 grms. for two days, and 4 grms. for two days, and on the second day the case would be sounded diagnostically. Recently two cases were found with a definite stricture deep to the fossa navicularis ; these men had a history of enuresis in childhood. Another man with urethritis gave a history of a risk six weeks ago. A severe stricture was found. This was an exacerbation of a complaint which he had had from the age of nine and it was probably related to some earlier infection.

Dr. MASCALL said that he had seen no increase of incidence at the Whitechapel Clinic. During part of 1938, over three months, out of 1,245 there were 694 cases of non-specific urethritis ; in 1941 out of 1,062 cases there were 392 cases, and this he attributed largely to the routine use of cultures in any case in which they could not isolate the gonococcus, the routine use of which he considered essential. The gonococcal fixation test was often of great value. Some of these cases were not diagnosed until later when one was testing for cure and was taking the prostatic cultures. If a thorough search was made most of the cases of discharge had a gonococcal basis.

If any increase had occurred it was most probably due to the use of sulphonamide tablets. Patients received a number of tablets, the discharge stopped and they thought they were cured and passed the tablets on to a friend. One often saw patients after they had taken a large number and had not been cured. Another reason was intercourse during menstruation, or just after, because the vagina was rich in organisms at that time, especially the trichomonas vaginalis. In this country cultures for trichomonas had been little used in male cases. but some authorities considered their use essential for correct diagnosis. With regard to treatment, for some time past he had used streptocide cum methylene blue and the results so far were promising.

Colonel T. E. OSMOND did not think that 1 in 4 of all cases were really non-gonococcal in origin. He thought that they needed a clearer definition of non-gonococcal urethritis. Did they mean cases in which the gonococcus was definitely excluded or those in which one smear failed to reveal the gonococcus ? He was speaking of the former. If chemical urethritis was excluded primary non-gonococcal urethritis was rare. In the Army so-called non-gonococcal urethritis represented about 20 per cent. of all cases which accorded with figures given by others. He thought the previous use of sulphonamides for a primary gonorrhœa explained many of these cases ; Colonel Robert Lees told him that sulphonamides were easily obtained in Middle East and non-gonococcal urethritis was common.

With regard to differential diagnosis he thought the gonococcal fixation test was valuable. Cultures were valuable provided the medium was suitable, and in nine cases out of ten he was convinced that it was not. Until they could improve their pathological methods they would continue to diagnose far too many cases as non-gonococcal urethritis. He did not believe that all the flora of the vagina were pathogenic to the average man unless his urethra had been previously affected either chemically or bacteriologically.

Col. L. W. HARRISON (the President) thought the discussion had been very interesting and valuable because it showed their limitations in this matter. No one had given an analysis of the number of cases which were posterior and those which were anterior. How many people tried to discover properly whether the condition was anterior or posterior ? So often the two classes were taken together. He never thought of tackling a case of this kind without thoroughly washing out the anterior urethra before taking the urine and he did not think any other method was any use unless prostatitis could be demonstrated after thoroughly washing down the urethra.

Dr. Sharp mentioned " sago-grain " urethritis, in which he had always been interested and he wondered how many people had discovered it in their cases. One speaker mentioned acriflavine. An enthusiastic patient of his tried acriflavine after many other things, he went away with the acriflavine, retained it for many hours and that definitely ended a long-standing and troublesome condition. There might be something in making the patients retain the acriflavine for longer than at present.

Another method he had tried was filling up the urethra, when he was quite sure that the trouble was anterior, with 10 per cent. mercurochrome, with good results in some cases. Then there was their friend masterly inactivity which would cure many over-treated cases.

Much had been said about cultures and he thought the conclusion to which anyone would come was that there the situation was not too satisfactory. One could almost wish that there could be special laboratories in which these secretions would be cultured really well, because he had seen in some clinics methods of culturing under which he would almost have defied a staphylococcus to grow. When he was in a bacteriology department he was taught to make his own medium, and he learnt well the importance of detail, with which many pathologists did not concern themselves.

With regard to the question of centralising laboratory diagnosis he thought that people here were apt to place the material on to the medium more quickly than they need. A number of workers in the U.S.A. had found that they could put the secretion, whatever it was, into a few c.c.s. of ascitic broth and it would remain quite good for subsequent culturing for a number of hours if kept cold. He had been able to culture the gonococcus from capillary tubes filled with gonorrhœal secretion which had been left on the bench for some days. Another suggestion worth investigating was that the gonococcus would remain viable in urine. He had no means of verifying this claim but it seemed to him that such hints were worth following up.

Wing-Commander McELLIGOTT, in reply, wished to disagree with Col. Osmond. He thought it was too easy an explanation of the problem to say that nearly all these cases must be gonococcal e ven though bacteriologocal and serological evidence was consistently absent and the clinical course of the two diseases was so very different. His problem was not so much how to cure these patients, as they usually recovered in a few weeks, but how rapidly they could be cured. In civilian life one did not worry much about most of them, once gonococcal infection had been excluded, but in the Service they occupied beds and wasted their time.

He agreed that it was probably necessary for the continuity of the urethral mucous membrane to be broken before non-gonococcal infection could take place, but he considered that intercourse, masturbation or even urinary crystals could easily bring this about, and that a slight urethritis was not an uncommon condition even among constant married men, when, in the absence of a guilty conscience, it often escaped the observation of the patient himself.

His next point was that in these cases provocation never seemed to produce evidence of gonococcal infection. He had subjected many of these cases to every form of urethral and prostatic insult with no effect on the smears or the cultures, and he agreed with Col. Harrison that no case should be considered a primary infection until the prostate and vesicles had been exonerated.

Finally, he noted that at the Whitechapel Clinic, where the bacteriology was in the hands of Dr. Orpwood Price, the proportion of non-gonococcal to gonococcal cases appeared to be much the same as in other clinics, namely, in the neighbourhood of one to three.

Dr. ORPWOOD PRICE, in reply, said that if a patient complained of a urethral discharge and on investigation it was found to be a prostatorrhœa one could not be held to be culpable if at the outset one called it a urethritis. On the question

of vaginal infection of the male urethra he personally had never seen it, although if the normal vaginal secretion was examined there were hundreds of organisms present.

Col. Campbell did not like his interpretation of 15 pus cells and over indicating gonococci, but what he actually said was that 15 pus cells or over made him suspect gonococci, not regard it as a fact that they were there. If one looked at smears one got impressions and in such cases one looked longer than usual. He was very impressed with the experiences of one member who found Trichomonas in urethral discharges. If there were 20 out of 1,000 cases due to this cause they certainly should see some at Whitechapel.

Chocolate agar medium mentioned by another member was not an easy medium to work with as it was opaque and because the usual examination was more difficult he never used it. Egg albumen agar yielded quite as satisfactory a growth, in fact, he thought it was better, and the medium was absolutely transparent. His experience of the wet swab was that if the inoculum was wet a suspension was made of all the organisms present. All the other organisms grew very readily whilst gonococcal growth was slow and was apt to get swamped. Col. Harrison also mentioned the use of urine but the speaker was against this procedure because it was well known that gonococci were soluble in alkali and if it was acid to any real extent gonococci would die. *p*H variations of ordinary urine were sufficient to bring about either of these results.